- 4. An isolated nucleic acid segment consisting of a nucleotide sequence selected from the group consisting of SEO ID Nos: 3-53.
 - 6. A vector containing the DNA of claim 2 or 3.
 - The vector of claim 6, wherein said vector is a retroviral vector.
 - 8. A host transformed with the vector of claim 6.
- A kit for determining an alteration in a mammalian MSH5 gene by DNA amplification comprising:
 - a set of DNA oligonucleotide primers in a vial, set allowing synthesis of a DNA encoding the DNA mismatch repair gene, wherein said primers are selected from the isolated nucleotide segments of claim 3.
- The kit of claim 10, wherein said primers consist of the primers selected from the group consisting of SEQ IDs:3-50.
- The isolated and purified nucleotide segment of claim 2, wherein the nucleotide segment is the coding region of SEQ ID NO:1.
- 40. An isolated and purified nucleotide segment having the sequence set forth in SEQ ID NO:1, wherein the nucleotide segment is mRNA or cDNA.
- 41. An isolated and purified nucleotide segment, wherein said nucleotide segment is a fragment of at least 17 contiguous nucleotides of SEQ ID NO: 1. with the exception that said fragment cannot be selected only from base pairs 1908-2900, and wherein said nucleotide segment is mRNA or cDNA.
- An isolated and purified nucleotide segment encoding the amino acid sequence of SEQ ID NO:2, wherein said nucleotide segment is mRNA or cDNA.
- The isolated and purified nucleic acid segment of claim 2, wherein said nucleotide segment consists of SEO ID NO:1.
- 44. The isolated and purified nucleic acid segment of claim 3, wherein said nucleotide segment consists of said fragments of SEQ ID NO:1.
 - 45. An isolated and purified nucleotide SEQ segment consisting of
 - (a) at least one exon from SEQ ID NO:1 wherein starting at position 235 and continuing continuously, exon is 221 basepairs, exon 2 is the next 160 basepairs, exon 3 is the next 124 basepairs, exon 4 is the next 81 basepairs, exon 5 is the next 63 basepairs, exon 6 is the next 122 basepairs, exon 7 is the next 110 basepairs, exon 8 is the next 36